generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width; and

directing said pulse to a point at or beneath the surface of the material.

56. The method according to claim 55 wherein the material is a metal, the pulse width is 10 to 10,000 femtoseconds, and the pulse has an energy of 1 nanojoule to 1 microjoule.

57. The method according to claim 55 wherein the spot size is varied within a range of 1 to 100 microns by changing the f number of the laser beam.

58. The method according to claim 55 wherein the spot size is varied within a range of 1 to 100 microns by varying the target position.

59. The method according to claim 55 wherein the material is transparent to radiation emitted by the laser and the pulse width is 10 to 10,000 femtoseconds and the pulse has an energy of 10 nanojoules to 1 millijoule.

60. The method according to claim 55 wherein the material is biological tissue, the pulse width is 10 to 10,000 femtoseconds and the pulse has an energy of 10 nanojoules to 1 millijoule.

61. A method for laser induced breakdown (LIB) of a biologic material with a pulsed laser beam, the material being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a rapid and distinct change in slope at a predetermined laser pulse width where the onset of plasma induced breakdown occurs, said method comprising the steps of:

generating at least one laser pulse which has a pulse width equal to or less than said predetermined laser pulse width; and

directing said pulse to a point at or beneath the surface of the material so that the laser beam defines a spot and has a lateral gaussian profile characterized in that fluence at or near the center of the beam spot is greater than the threshold fluence whereby the laser induced breakdown is ablation of an area within the spot.

62. The method according to claim 61, wherein the spot size is a diffraction limited spot size providing an ablation cavity having a diameter less than the fundamental wavelength size.

63. A method for laser induced breakdown (LIB) of a biologic material with a pulsed laser beam, the material being characterized by a of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a rapid and distinct change in slope at a predetermined laser pulse width where the onset of plasma induced breakdown occurs, said method comprising the steps of:

a. generating at least one laser pulse which has a pulse width equal to or less than said predetermined laser pulse width; and

b. directing said pulse to a point at or beneath the surface of the material which is biological tissue, the pulse width is 10 to 10,000 femtoseconds and the beam has an energy of 10 nanojoules to 1 millijoule.

64. A method for laser Induced breakdown (LIB) of a biologic material by plasma formation with a pulsed laser beam, the material being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a distinct change in slope at a characteristic laser pulse width, said method comprising the steps of:

a. generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width, said characteristic pulse width being defined by the ablation (LIB) threshold of the material as a function of pulse width where the ablation (LIB) threshold function is no longer proportional to the square root of pulse width; and

b. directing said pulse to a point at or beneath the surface of the material and inducing breakdown by plasma formation in the material.

65. The method according to claim 64 and further including:

a. identifying a pulse width start point;

b. focusing the laser beam initial start point at or beneath the surface of the material; and

c. scanning said beam along a predetermined path in a transverse direction.

66. The method according to claim 64 and further including:

a. identifying a pulse width start point;

b. focusing the laser beam initial start point at or beneath the surface of the material; and

c. scanning said beam along a predetermined path in a longitudinal direction in the material to a depth smaller than the Rayleigh range.

67. The method according to claim 64 wherein the breakdown includes changes caused by one or more of ionization, free electron multiplication, dielectric breakdown, plasma formation, and vaporization.

68. The method according to claim 64 wherein the breakdown includes plasma formation.

69. A method for laser induced breakdown (LIB) of an organic material with a pulsed laser beam, the material being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a rapid change in slope at a characteristic laser pulse width, said method comprising the steps of:

generating at least one laser pulse which has a width equal to or less than said characteristic laser pulse width where the laser pulse width is 10 to 10,000 femtoseconds, and the pulse has an energy of 10 nanojoules to 1 millijoule; and

directing the pulse to a point at or beneath the surface of the material.

70. A method for laser induced breakdown (LIB) of an organic material with a pulsed laser beam, the material being characterized by a relationship of fluence threshold at which breakdown occurs versus laser pulse width that exhibits a rapid change in slope at a characteristic laser pulse width, said method comprising the steps of:

selecting a pulse width and fluence which is equal to or less than the distinct change in slope;